



DOCKET NO: V0189.70018US00

CJC

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: US 6,833,250 B2
Issue Date: December 21, 2004
Patentee: Barb Ariel Cohen
Serial No: 09/759,815
Confirmation No: 2715
Filed: January 10, 2001
For: DETECTION AND REMOVAL OF CHITINOUS MATERIAL IN A
BIOLOGICAL SAMPLE

Examiner: Ralph J. Gitomer
Art Unit: 1651

**Certificate
FEB 01 2005
of Correction**

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 26/01 day of January, 2005.

June Watson
June Watson

Mail Stop Certificate of Correction
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REQUEST FOR ENTRANCE OF CERTIFICATE OF CORRECTION
UNDER 35 U.S.C. §254 and §255

Sir/Madam:

Patentee respectfully requests the correction of errors in the printing of the above-captioned patent. Specifically, the inventors are incorrect, and claim 33 has two typographical errors made by the Patent Office. Please correct as follows:

Inventors:

There should only be one inventor listed, "Barb Ariel Cohen"; all others should be deleted. Enclosed is a copy of a Petition to correct Inventorship Under 37 CFR §1.48(b) which was filed on February 14, 2003. The petition was accepted by the U.S. Patent and Trademark Office as indicated in the Office Action of April 2, 2003.

Claims:

In Column 24, line 17, delete "Stemphyliuin" and replace with --*Stemphylium*--.
In Column 24, line 18, delete "Altemaria" and replace with --*Alternaria*--.

Patentee points out that the corrections requested do not involve change in the patent that constitutes new matter or would require reexamination, and therefore, respectfully request that a certificate of correction be issued. Patentee encloses a copy of the issued patent with the errors highlighted. Since the error was made by the Patent Office, it is respectfully submitted that no fee is due. However, if the Examiner deems a fee necessary, the fee may be charged to Deposit Account No. 23/2825. Should any questions arise concerning the foregoing, please contact the undersigned at the telephone number listed below.

For the reasons stated above, Patentee respectfully requests entrance of the enclosed Certificate of Correction.

Respectfully submitted,


John R. Van Amsterdam, Reg. No. 40,212
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2211
Telephone: (617) 646-8000

Docket No. V0189.70018US00

Date: January 21, 2005

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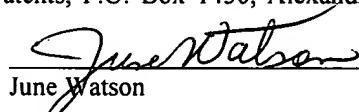
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June Watson

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith are the following document(s):

- Request for Entrance of Certificate of Correction Under 35 U.S.C. §254 & §255
- Certificate of Correction - Form PTO-1050
- Copy of pertinent pages from U.S. Patent No. US 6,833,250 B2
- Copy of Petition to Correct Inventorship Under 37 CFR §1.48(b) previously filed
- Return Receipt Postcard

If the enclosed papers are considered incomplete, the Mail Room and/or the Application Branch is respectfully requested to contact the undersigned collect at (617) 646-8000, Boston, Massachusetts.

No fee is enclosed. If a fee is necessary, the Commissioner is hereby authorized to charge Deposit Account No. 23/2825. A duplicate of this sheet is enclosed.

Respectfully submitted,

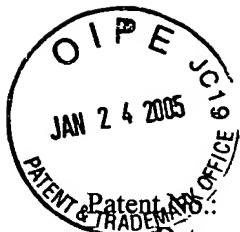


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Docket No. V0189.70018US00
Date: January 21, 2005
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Patentee: Barb Ariel Cohen
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P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith are the following document(s):

- Request for Entrance of Certificate of Correction Under 35 U.S.C. §254 & §255
- Certificate of Correction - Form PTO-1050
- Copy of pertinent pages from U.S. Patent No. US 6,833,250 B2
- Copy of Petition to Correct Inventorship Under 37 CFR §1.48(b) previously filed
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Respectfully submitted,


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2 FEB 2005

Docket No. V0189.70018US00

Date: January 21, 2005

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : US 6,833,250 B2
DATED : December 21, 2004
INVENTORS : Barb Ariel Cohen

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

(75) Inventors: **Barb Ariel Cohen**, Watertown, MA (US)

In the claims:

Claim 33,

In Column 24, line 17, delete "Stemphyliuin" and replace with --Stemphylium--.

In Column 24, line 18, delete "Altemaria" and replace with --Alternaria--.

MAILING ADDRESS OF SENDER:

PATENT NO. US 6,833,250 B2

John R. Van Amsterdam
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22 FEB 2005



US006833250B2

(12) **United States Patent**
Potts et al.

(10) Patent No.: **US 6,833,250 B2**
(45) Date of Patent: **Dec. 21, 2004**

(54) **DETECTION AND REMOVAL OF CHITINOUS MATERIAL IN A BIOLOGICAL SAMPLE**

(75) Inventors: **Steven J. Potts, Davis, CA (US); David C. Slaughter, Davis, CA (US); James F. Thompson, Sacramento, CA (US); Jennifer J. Payne, Davis, CA (US); Barb Arlel Cohen, Watertown, MA (US)**

(73) Assignee: **Vicam, L.P., Watertown, MA (US)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 79 days.

(21) Appl. No.: **09/759,815**

(22) Filed: **Jan. 10, 2001**

(65) **Prior Publication Data**

US 2002/0107179 A1 Aug. 8, 2002

Related U.S. Application Data

(63) Continuation-in-part of application No. 09/519,533, filed on Mar. 6, 2000.

(51) **Int. Cl. 7** C12Q 1/04

(52) **U.S. Cl.** 435/34; 435/18

(58) **Field of Search** 435/34, 18; 436/827; 530/370

(56) **References Cited**

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* cited by examiner

Primary Examiner—Ralph Gitomer

(74) **Attorney, Agent, or Firm**—Wolf, Greenfield & Sacks, P.C.

(57) **ABSTRACT**

This invention provides novel methods for the detection of chitinous contaminants of non-chitinous biological materials. The methods are accurate, highly reproducible, rapid and relatively inexpensive. The methods are well suited to commercial applications, particularly in the food and agriculture industry where biological materials (e.g. food products) are regularly screened for contaminants (e.g. insect, mold, fungus, etc.). In one embodiment, the methods involve contacting a biological sample with a probe that is a lectin that binds chitin, contacting the sample with a pectinase; and detecting binding of said lectin to a chitin where the binding indicates the presence of chitin in the biological sample.

11. The method of claim 1, wherein said method further comprises contacting said sample with a blocking reagent.

12. The method of claim 11, method wherein said blocking reagent is serum albumin.

13. The method of claim 1, wherein said chitin degradation product is N-acetyl D-glucosamine.

14. The method of claim 1, wherein said lectin is labeled with a detectable label.

15. The method of claim 14, wherein said label is selected from the group consisting of a radioactive label, a magnetic label, a colorimetric label, an enzymatic label, a fluorescent label, a metal, an antibody, a biotin, and an avidin or streptavidin.

16. The method of claim 14, wherein said label is a fluorescent label.

17. The method of claim 16, wherein said detecting comprises using a fluorometer to detect fluorescence of said label.

18. The method of claim 17, wherein said fluorometer uses a bandpass filter.

19. The method of claim 17, wherein said fluorometer is a surface-reading fluorometer.

20. The method of claim 17, wherein said fluorometer is a surface-reading fluorometer.

21. The method of claim 16, wherein said detecting comprises using a fluorometer to detect fluorescence of said label.

22. The method of claim 14, wherein said label is selected from the group consisting of a radioactive label, a magnetic label, a colorimetric label, an enzymatic label, a fluorescent label, a metal, an antibody, a biotin, and an avidin or streptavidin.

23. The method of claim 14, wherein said label is a fluorescent label.

24. The method of claim 1, wherein said method is performed at a pH greater than about pH 7.

25. The method of claim 1, wherein said method is performed at about pH 8.

26. The method of claim 1, wherein said pectinase comprises an enzyme selected from the group consisting of polygalacturonases, pectinesterases, pectin lyases, and hemicellulases.

27. The method of claim 1, wherein the processed biological sample is a sample that has been subjected to an operation selected from the group consisting of comminuting, homogenizing, heating, evaporation, lyophilization, filtering, concentrating, fermenting, freezing, and blanching.

28. The method of claim 1, wherein the biological sample is selected from the group consisting of a fruit, a vegetable, a fruit juice, and a vegetable juice; said lectin is a fluorescently labeled lectin selected from the group consisting of wheat germ agglutinin (WGA), succinylated WGA, pokeweed lectin, tomato lectin, potato lectin, barley lectin, rice lectin, stinging nettle lectin, a vicilin, a chitovibrin, a Vibrio lectin, and a hevein; said pectinase is a pectinase selected from the group consisting of polygalacturonases, pectinesterases, pectin lyases and hemicellulases; said sample is processed by an operation selected from the group consisting of comminuting, homogenizing, heating, evaporation, lyophilization, filtering, concentrating, fermenting, freezing, and blanching; and said detecting comprises detecting a signal from the fluorescent label labeling said lectin.

29. A method of detecting chitinous material in a non-chitinous biological sample, said method comprising in a solution at a pH ranging from about pH 7 to about pH 9 contacting said biological sample with a fluorescently labeled probe that is a lectin that binds chitin;

filtering said sample;

washing said filter to remove unbound lectin;

eluting bound lectin with a chitin, a chitin degradation product or a chitin analogue; and

detecting said lectin wherein detection of said lectin indicates the presence of chitinous material in said biological sample.

30. The method of claim 29, wherein said chitin comprises an insect or insect part.

31. The method of claim 29, wherein said chitin is a component of a microorganism.

32. The method of claim 31, wherein said microorganism is selected from the group consisting of a fungus, a mold, and a yeast.

33. The method of claim 31, wherein said microorganism is a fungus selected from the group consisting of *Cladosporium herbarum*, *Fusarium oxysporum*, and *Stemphylium botryosum*, ~~Alternaria~~ *alternata*, *Geotrichum candidum*, *Rhizopus stolonifer*, *Botrytis cinerea*, *Phytophthora parasitica*, *Pythium aphanidermatum*, *Pythium ultimum*.

34. The method of claim 29, wherein said biological sample is selected from the group consisting of an agricultural product, a food product, a wood product, a textile, and an animal tissue product.

35. The method of claim 34, wherein said agricultural product is selected from the group consisting of consisting of a fruit, a vegetable, a grain, forage, a silage, a juice, a wood, a flower, and a seed.

36. The method of claim 34, wherein said agricultural product is a fruit selected from the group consisting a fruit, a vegetable, a grain, forage, a silage, a juice, a wood, a flower, and a seed.

37. The method of claim 29, wherein said lectin is selected from the group consisting of wheat germ agglutinin (WGA), succinylated WGA, pokeweed lectin, tomato lectin, potato lectin, barley lectin, rice lectin, stinging nettle lectin, a vicilin, a chitovibrin, a Vibrio lectin, and a hevein.

38. The method of claim 29, wherein said method further comprises contacting aid sample with a blocking reagent.

39. The method of claim 38, wherein said blocking reagent is serum albumin.

40. The method of claim 29, wherein said chitin degradation product is N-acetyl D-glucosamine.

41. The method of claim 29, wherein said lectin is labeled with a detectable label.

42. The method of claim 29, wherein said method is performed at a basic pH greater than about pH 7.5.

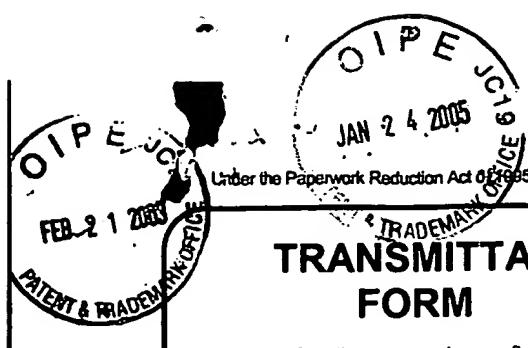
43. The method of claim 29, wherein said method is performed at a basic pH about pH 8.0.

44. The method of claim 29, wherein the biological sample is selected from the group consisting of a fruit, a vegetable, a fruit juice, and a vegetable juice; said lectin is a fluorescently labeled lectin selected from the group consisting of wheat germ agglutinin (WGA), succinylated WGA, pokeweed lectin, tomato lectin, potato lectin, barley lectin, rice lectin, stinging nettle lectin, a vicilin, a chitovibrin, a Vibrio lectin, and a hevein; and said detecting comprises detecting a signal from the fluorescent label labeling said lectin.

45. The method of claim 29, further comprising contacting said biological sample with a pectinase.

46. The method of claim 45, wherein said pectinase is selected from the group consisting of polygalacturonases, pectinesterases, pectin lyases and hemicellulases.

Stemphylium
ALTERNARIA



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**TRANSMITTAL
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(to be used for all correspondence after initial filing)

		Application Number	09/759,815
		Filing Date	January 10, 2001
		First Named Inventor	Potts
		Art Unit	1627
		Examiner Name	Ralph J. Gitomer
Total Number of Pages in This Submission		Attorney Docket Number	

FEB 26 2003
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ENCLOSURES (Check all that apply)

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		Return Postcard	
		Petition to Correct Inventorship	
		Remarks	
		The Commissioner is authorized to charge any additional fees to Deposit Account 20-1430.	

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual	Townsend and Townsend and Crew LLP Matthew E. Hinsch	
Signature		
Date	February 14, 2003	

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231 on this date:

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FEE TRANSMITTAL

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Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 130

Complete if Known	
Application Number	09/759,815
Filing Date	January 10, 2001
First Named Inventor	Potts
Examiner Name	Ralph J. Gitomer
Group Art Unit	1627
Attorney Docket No.	02307O-130810US

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METHOD OF PAYMENT (check all that apply)

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Deposit Account Name	Townsend and Townsend and Crew LLP

The Commissioner is authorized to: (check all that apply)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity	Small Entity	Fee Description	Fee Paid
Fee Code (\$)	Fee Code (\$)		
1001 750	2001 375	Utility filing fee	
1002 330	2002 165	Design filing fee	
1003 520	2003 260	Plant filing fee	
1004 750	2004 375	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	

SUBTOTAL (1) **(\\$)** _____

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims	Fees from below	Fee Paid
Total Claims	<input type="text"/>	..*	<input type="text"/> X <input type="text"/>	<input type="text"/>
Independent Claims	<input type="text"/>	..*	<input type="text"/> X <input type="text"/>	<input type="text"/>
Multiple Dependent			X <input type="text"/>	<input type="text"/>

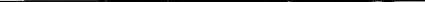
Large Entity	Small Entity			
Fee Code	Fee (\$)	Fee Code (\$)	<u>Fee Description</u>	
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue Independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

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*Reduced by Basic Filing Fee Paid **SUBTOTAL (3)** **(\$130)**

SUBMITTED BY

SUBMITTED BY		Completed (or updated)		
Name (Print/Type)	Matthew E. Hirsch	Registration No. (Attorney/Agent)	47,651	Telephone
Signature				Date
				February 14, 2003

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PATENT 3-11-03
Attorney Docket No.: 023070-130610US

Assistant Commissioner for Patents
Washington, D.C. 20231

On February 14, 2003

TOWNSEND and TOWNSEND and CREW LLP

By: Joy M. Marshall



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Potts *et al.*

Application No.: 09/759,815

Filed: January 10, 2001

For: THE DETECTION AND
REMOVAL OF MICROORGANISM
CONTAMINATION

Examiner: Ralph J. Gitomer

Art Unit: 1627

PETITION TO CORRECT
INVENTORSHIP UNDER
37 CFR § 1.48(b)

Assistant Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

Applicants petition under 37 CFR § 1.48(b) to remove Steven J. Potts, David C. Slaughter, James F. Thompson and Jennifer J. Payne as inventors to the above-identified patent application.

The above-listed individuals are requested to be removed as inventors because they are not inventors of the pending claims, as amended in the Response to Restriction, mailed January 21, 2003.

Please deduct the petition fee, pursuant to 37 CFR § 1.17(i), of \$130 from Deposit Account No. 20-1430 of the undersigned. Please charge any additional fees or credit overpayment to the above Deposit Account.

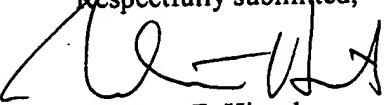
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If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned attorney at (415) 576-0200.

Respectfully submitted,


Matthew E. Hinsch
Reg. No. 47,651

TOWNSEND and TOWNSEND and CREW, LLP
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